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ABSTRACT

One in a series of 10 promotional publications on videotex, this document describes both videotex and teletext and illustrates with actual examples how educators are using these new tools. Topics discussed include the educational roles permitted by the standardization of videotex and teletext; characteristics of the North American Presentation Level Protocol Syntax (NAPLPS), known in Canada as Telidon; how videotex can work with microcomputers; integrated computer assisted instruction/videotex sytems and software; and videotex software for microcomputers. Advantages of videotex are given as ease of use, low cost, assured service and reliability, and home delivery of education. Specific examples of educational videotex and teletext applications are described and include those of the TV Ontario services Edutex and Edutel, University of Alaska, the British Columbia Motor Vehicle Department, University of Guelph, Canadian Hospital Association, National Museum of Man, Sheridan College, Memorial University (St. John's, Newfoundland), and the University of Calgary. (LMM)

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VIDEOTEX AND EDUCATION

With the onrush of the "information explosion", teachers and educators are looking for dramatic new ways of keeping current with the flood of information and improving educational techniques. The old standby — the textbook — has been joined by an array of new computer-based educational media.

This brochure describes two of the most effective of the new generation of computerized educational tools — videotex, and its close cousin teletext — and shows how educators throughout North America are already reaping the benefits of early experience with these exciting new tools.

Educational authorities, staff trainees and universities across North America have begun using videotex and teletext as a way to disseminate information, carry out long-distance education, and provide programmed learning and testing facilities.

With videotex, teletext and related technologies, physical location and time schedules no longer define the activity. Even the distinction between education, work and leisure is disappearing. Not only do computerized facilities make the business of education more efficient and more effective, but they are changing the very process of education itself.

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TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

A VISUAL, ELECTRONIC WORLD

Today's world is visually oriented and electronically connected. Advanced telecommunications and micro-electronic products such as television, cable, pay TV, telephones, videodisc, satellites, videogames, personal computers and videotex are making information and interactive learning available not only to "formal" students but to children and adults no matter where they live, learn or work.

Among the array of new techniques, videotex and teletext offer dramatic new possibilities for interactive learning, specialized training, distance education, testing and a host of other educational applications.

VIDEOTEX: A PRIMER

Basically, videotex is a means of creating and storing text and high-quality colour graphics simply and inexpensively; material is retrieved at the user's command through any telecommunications link and displayed on a TV screen or monitor. To retrieve information created on a videotex system, a user merely has to punch a few buttons, following easy-to-understand directions on the screen. Communications can be through standard telephone lines, cable TV, satellite or virtually any transmission medium.

Its interactive capability and its superb high-resolution colour graphics are among the factors which make videotex ideal for many educational purposes.

Teletext is somewhat similar to videotex, except that a TV broadcast signal is used to transmit the information. With teletext, a stream of pages is broadcast continuously and the user, by pressing the appropriate keys on a keypad, can choose a particular page to be displayed on the screen.

ONE STANDARD . . .

In North America, videotex has been standardized. This is one reason why videotex may be used confidently in the field of education. Videotex is a standard for formatting information for the home terminal or microcomputer. The North American Presentation Level Protocol Syntax (NAPLPS) is the agreed-upon videotex standard for North America and the Far East. It has been endorsed by the American National Standards Institute, and is being used by DEC, AT&T, IBM, Techtronix, Xerox, Apple, Microsoft, and others.

A version of this standard has also been adopted by broadcasters for teletext. This teletext standard, called the North American Broadcast Teletext Standard (NABTS), has been endorsed by CBS, NBC, CBC (Canadian Broadcasting Corporation), TV Ontario (an educational network), several PBS stations and major cable companies across North America.

The videotex and teletext standards permit television sets and computers in North America to be used to exchange information from a variety of sources via a number of telecommunications means. The serious problem of incompatible standards among educational computers does not even exist in the videotex world.

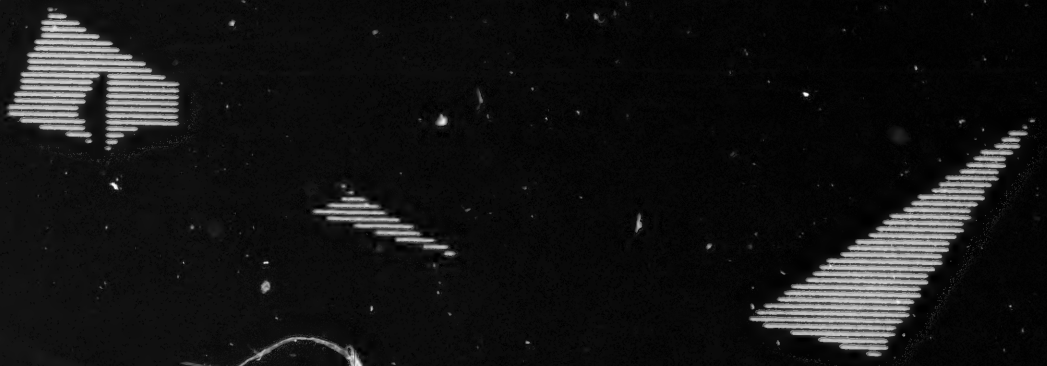
. . . THOUSANDS OF APPLICATIONS

Videotex may be used as an electronic projection system to illustrate courses and advertise services. Information and data may be displayed as colourful graphics that can be easily updated and kept current. Teachers, administrators, trainers and students may draw from various databases, add new material, update when necessary, create their own databases and exchange these databases wherever and whenever they wish.

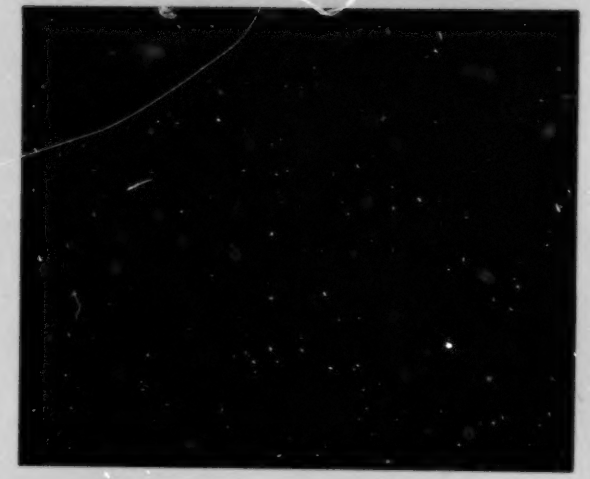
Canada is a pioneer in the research and development of the world's videotex and teletext technologies. In 1978, Canada introduced its advanced videotex technology: Telidon. With its superior graphic capability, Telidon captured the imagination of the North American market and led to the development of the NAPLPS protocol. Canada is now designing and marketing a wide range of hardware, software, content and systems.

Canadian Telidon equipment is 100 per cent compatible with NAPLPS, the accepted standard.

School Basics



A VERSATILE EDUCATIONAL MEDIUM

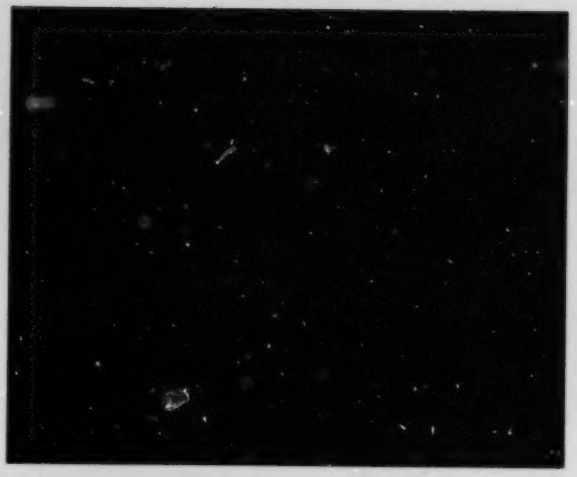


The standardization of videotex and teletext permits the technologies to play a number of educational roles.

1. A Complete Educational System
Videotex is an inexpensive, interactive electronic system which accommodates computer-assisted instruction (CAI), electronic mail, lesson plans, inventory, library cataloguing, financial modeling and information retrieval using existing television sets, phone systems, cable systems and mini- or micro-computers.

2. An Information System
Teletext is an inexpensive information and data dissemination system using television broadcast, cable technology and television sets to deliver scheduling information, course up-dates, a bibliography, a syllabus, or even a course.

3. A Graphics Medium
Videotex is an effective means to create and receive dynamic, electronic graphics and text for learning (maps, charts, and illustrations), information transmission and marketing that may be transferred easily to other media such as print, colour slides, videotape.



4. A Software Program
As a software package for a variety of microcomputers, videotex enables micros to graphically present data accessed from existing electronic databases such as computer-assisted instruction packages.

A POWERFUL EDUCATIONAL RESOURCE

Inherent in the NAPLPS videotex standard are characteristics fundamental to satisfying the needs of the various educational communities.

POWER:

- Easy access to remote educational resources (eg. libraries, museums)
- Full range of up to 16 million colours
- Access to many databases for research
- Graphics and animation capabilities
- Cost of creating information is low
- Cost of accessing information is low
- Material is easy to update
- Material is in a standard format for content exchange between existing school microcomputers
- Compatible with CAI packages such as Plato, NATAL, CAN 8

FLEXIBILITY:

- Easy to use
- No computer programming skills are required to create or access data
- Can be used with videotape, videodisc and sound recordings
- All educational materials (lesson visuals) prepared are available to all teachers at the same time, even at different locations.
- Ease of use means less resistance to use
- Can operate from a software package on many existing micros
- Permits access to external databases such as on-line encyclopedias

COST:

- Uses equipment already purchased (TV, microcomputer, phone, cable)
- Centralizes the function of the media technician
- Centralizes administrative services
- Electronic dissemination dramatically reduces printing and distribution costs
- Graphics, once created, can be stored, changed and re-used in many different ways

VIDEOTEX AND MICROCOMPUTERS

Originally, videotex emerged as a unique system with dedicated equipment and facilities. Now, we are witnessing an overlap of videotex and personal computer technologies to our benefit!

For example, computer software can be delivered electronically to microcomputers via teletext broadcasts. Alternatively, many micros can run videotex software that enables the creation of content in videotex standard and the retrieval of content from external sources. Videotex terminals are being manufactured to give the user the same capabilities as microcomputers. And many microcomputers now have NAPLPS capability with the addition of appropriate hardware and software.

Today, however, pressure to purchase micros in the education system continues to mount. The reality is having to decide what hardware to buy with the limited funds available. There is no standardization of micros. The result is different hardware not only among school systems but within the school itself! And software cannot be interchanged.

There is an alternative.

Videotex provides an agreed-upon electronic highway which enables different hardware to access and display the same content. Schools may create courseware secure in the knowledge that it is compatible with any other videotex system.

HOME FROM SCHOOL

Within the last year, some of the giant companies in the computer and communications fields — AT&T, Knight Ridder, Times Mirror, Honeywell and many others — have begun developing NAPLPS videotex as a mass consumer medium. As videotex continues its spread to the home, courseware developed for the educational market will become accessible through home videotex terminals. Courseware publishers, realizing that NAPLPS represents a single standard, have been quick to react to this burgeoning new market.

TIRELESS, INFINITELY PATIENT

If you are concerned with professional development, continuing education or skills training, you will be pleased to know that videotex is a simple, cost-effective way to combine computer power and portability with print and audio-visual materials. With a videotex system you can create colourful graphic aids, synthesize materials, update information easily and customize courseware. The NAPLPS standard allows courseware to be exchanged between various locations, even between the office and home.

Videotex offers a low-cost means of providing quality training — even at a distance. Time works for you. At any time of the day or night, staff may have access to training programs.

With some videotex programs, the computer tracks the trainees' progress and tests their knowledge. The training program can be continually (and inexpensively) improved through user feedback and test results.

Videotex offers a number of advantages over print-based training programs. For example, material can be kept current by easy updating of content, and with none of the costs and logistics of having to reprint and redistribute material to what in some cases could be thousands of locations. As soon as new or updated material is created, it's available on the entire system. Instantly.

HOW TO USE VIDEOTEX IN TRAINING

1. As an audio-visual aid:
The same graphics and text may be displayed on a variety of screen sizes. Whether using a large screen for a group presentation or a television screen for an individual, you will not have to recreate the material to suit the medium.

It is expensive and time consuming to produce slides manually and even more expensive to produce training films. By using videotex, slide presentations can be produced and updated at a fraction of the cost. Further, slide shows can be animated or, for relatively modest sums, made into high-quality videotape training films.

2. As an always-available teacher:
Graphics and text may be recorded on a audio-tape or on a microcomputer with a floppy disk and used by an individual whenever time permits. Although the content is recorded, it may be selected randomly. Employees may take training on their own time, at their own speed.

3. As a network:
Videotex also provides a communications link between instructor and trainees and among trainees themselves. Messages may be exchanged. All locations of your organization have access to the same training materials at the same time.

4. As a management system:
The incorporation of record keeping and administrative functions helps trainers with their supervisory tasks. It is easier for trainers to record who has been trained, who needs training, and what courses are required. The database can also be organized to track the student's progress and help pinpoint weak aspects in the training materials.

WHO NEEDS IT?

If your situation is described below, then you will benefit by adding videotex to your current training system. Does your business have:

- — many outlets?
- — high staff turnover?
- — information that changes rapidly?

Do you need:

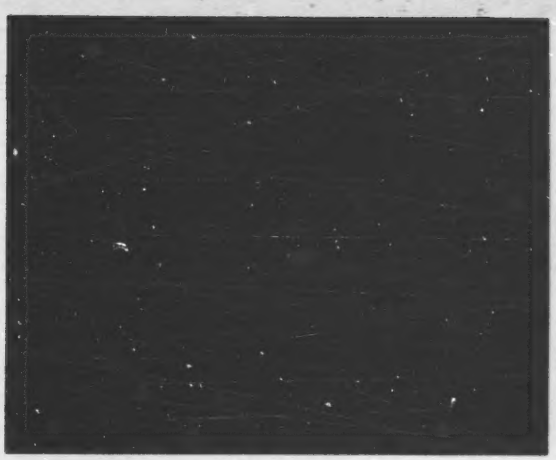
- — high-volume, short-term training programs?
- — a link between sales education and consumer information?
- — flexibility scheduling that lets training fit into operation at requirements?

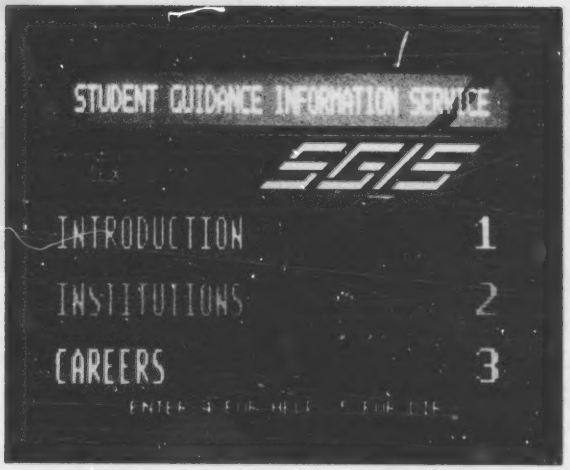
General Motors answered "yes" to most of these questions. Car dealerships with videotex use it to keep the sales staff current on new product lines and to help the customer identify what he wants and know what he sees. The same database is serving a dual purpose, employee knowledge is higher and the customer receives accurate product information. Ford is following this approach too.

VIDEOTEX OFFERS TRAINERS:

- Reduced travel and training costs
- A cross-country distribution network
- More training available to employees on their own time
- An inexpensive means for creating and updating material
- Inexpensive, full colour graphics for stunning presentations
- Standardization and compatibility
- A computer system that is easy to use
- A way to augment traditional training methods with computer capability
- A better response to management's training needs
- A better link between training and operations
- A film production technology that allows the creation of inexpensive videotapes with graphics and simple animation

FOLLOW THE LEADERS





Videotex is already being used for many applications in the field of education. A description of some of these follows.

OVER THE AIR

TV Ontario, the educational broadcaster of Ontario, Canada, has been using videotex and teletext to augment its service since 1978. TV Ontario now has two services commercially available:

Edutex

This is a videotex service in English and French. There are over 100 clients consisting of high schools, libraries and Youth Employment Centres. The main offering is the Student Guidance Information Service (SGIS). Career and training information includes extensive listings of courses available, institutions where they are offered and the costs. The large database is updated monthly. Other sections of the database include: a science and technology section focusing on anthropology; a section on heart disease; Telichart, an automatic system for generating charts from Statistics Canada data; and information on TV Ontario's many services.

Edutel

This is a teletext service providing a magazine of news, weather, information on the arts, health care, community events, educational news and financial services to students and educators.

The TV Ontario host computer can link to the the Ministry of Education administrative network to provide a range of information for teachers and school administrators. The videotex terminals supplied by Electrohome, Norpak and Viscount may receive information via broadcast, phone (data network), cable and satellite.

A number of educational and training institutions have contributed content to the database which TV Ontario operates, thereby reducing in-house costs. TV Ontario is now marketing a software package that permits the creation of NAPLPS content on Apple, Franklin and IBM PC computers. This package, Createx, will enable more institutions to contribute more easily to the database.

The next stage is to disseminate courses authored by teachers and students throughout the province via Edutex and Edutel.

REACHING THE UNREACHABLE

The University of Alaska is offering a complete teletext service for students off campus. The system enables students in remote areas (90 per cent of the communities in the state) to receive information, courses and assignments. Using audio conferencing, students may discuss their work with instructors. Via the teletext system, courseware is created and delivered to the 1,500 Apple II computers used in the schools and the university. The university is creating an electronic learning community to meet the needs of an isolated and scattered population.

Three Canadian companies, Systemhouse, Genesys, and Norpak, are supplying a satellite-based teletext system to augment the university's outreach facilities.

SMART TESTS

The Adaptive Testing Network has combined latent testing theory with videotex to produce a radically new driver training test now being used by the British Columbia Motor Vehicle Department.

The system is based on the premise that good testing forces the development of good training. An applicant pays an examination fee and takes the multiple-choice, graphically illustrated test. Responding to the examinee's performance, the system selects one of several knowledge domains, then specifies the level of difficulty that the next question should represent. The system then places the examinee on a scale of knowledge. The test is completed in twenty minutes. Estimated cost to the Motor Vehicle Department is $5.00 per examination.

This service is to be expanded across North America in many testing areas.

AGRICULTURAL SERVICE

The University of Guelph began exploring videotex as part of a TV Ontario field trial in 1980.

Today, it is adapting videotex:

- as a visual aid for courses in zoology and neural anatomy. The videotex graphics are transferred to videotape for use in pre- and post-testing for students taking these courses after a year's absence;
- as a University Career Planner, a self-paced instructional tool to help one pick courses in the biological studies area. Course requirements and entry requirements are listed for students;
- for pre- and post-testing as part of the TV Ontario Computer Academy, a distance education service;
- by contributing content to a commercial database in Manitoba — Grassroots, a videotex service for the agricultural community. They have listed all courses for independent study and have the facility for on-line course registration;
- for VET-TEL, a database for veterinarian continuing education.

Guelph plans to expand its educational product base and to market it around the world.

MEDICAL KNOW-HOW

The Canadian Hospital Association is implementing a national videotex system to serve regional hospital associations and, in some cases, joining with hospitals and university faculties of medicine to share the costs of creating and distributing medical and training information. The CHA is developing several databases to meet member needs:

- a listing of conferences, seminars and courses. This database is intended to reduce the duplication of effort and materials in continuing education by sharing information about national resources in this area.
- a health audio-visual service. From a library of graphics, slides or hard-copy print-outs are made available for papers and brochures.
- a product and equipment database. Information on new products, and products from different manufacturers will enable state-of-the-art buying decisions.
- poison control information.
- profile of the CHA for public education.

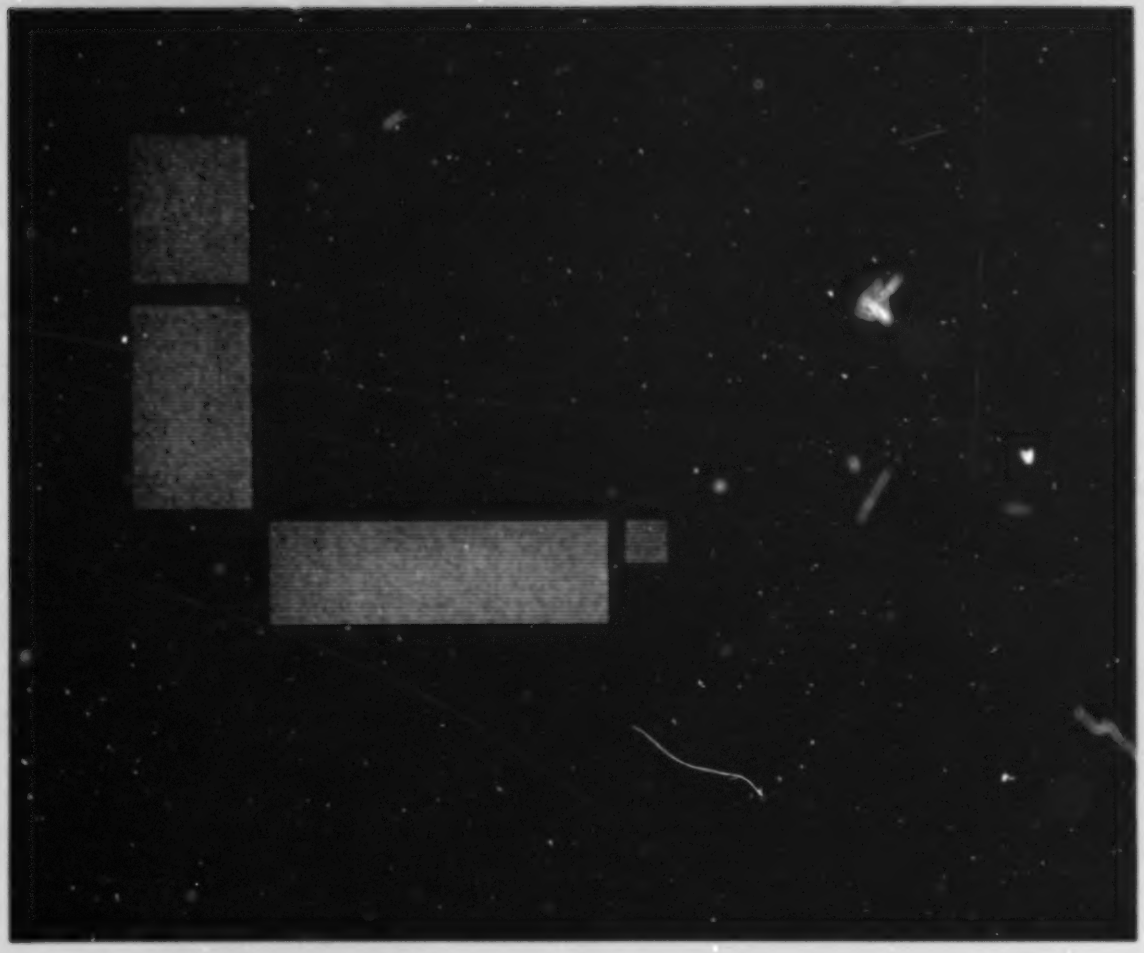
A MUSEUM WITHOUT WALLS?

The National Museum of Man is moving to a new location in 1987 and is taking this opportunity to plan videotex services as a part of the overall communications and information network. Videotex will be used:

- to get information out and to attract visitors to the museum.
- to aid visitors in selecting what they wish to see.
- to collect visitor opinions and comments.
- to deliver quizzes and games to reinforce content in museum exhibits.
- for promotion (e.g. in the sales boutique, or for ticket sales).
- as an in-house bulletin board.
- as part of a "living information wall" to replace static labels.
- to overlay graphic information on videodisc, enhancing the impact of exhibits.
- to catalogue the museum collection.
- to permit the home to visit the museum electronically, hence "the museum without walls".
- for electronic mail with graphics.
- to create an electronic art gallery; after children have visited the exhibits they will be able to graphically portray their impressions on videotex. This will form a gallery itself.

GOVERNMENT TRAINING

The Canadian federal government has plans to use videotex as the training vehicle for 100,000 civil servants in Ottawa to teach them how to use the new government telephone system.



A NEW ART FORM

Videotex produces stunning, full colour graphics. Accordingly, Sheridan College in Oakville, Ontario, in its one year graduate program in Computer Graphics, provides training in videotex content creation, database design and animation. Working with specialized software students experiment with three-dimensional graphics. Results are considered state-of-the-art.

A new lab is being planned to facilitate animation and 3-D work. Development is also beginning on a North American network system for graphic design programs. The first phase involves a distance education application at a remote site in California. Sheridan will send the course material and have a means to critique work being done by the students in California. It is anticipated that a number of colleges and universities will join the network, eventually sharing a visual space in real time.

VISUAL TELECONFERENCING

The faculties of education and continuing education at both Memorial University in St. John's, Newfoundland, and the University of Calgary have offered a course to teachers and administrators by linking videotex with the university's audio conferencing system.

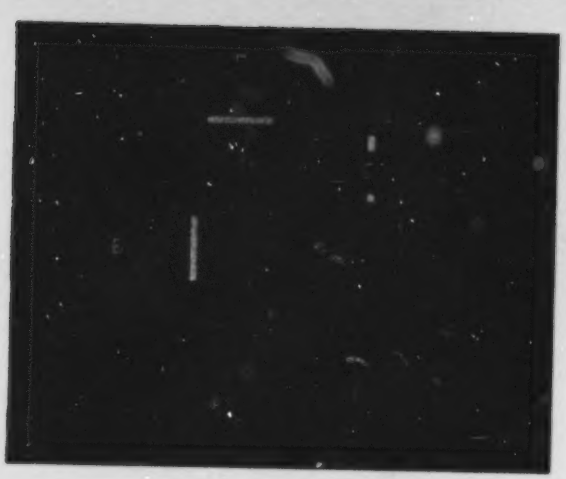
Videotex is used to illustrate points — some think of it as an electronic blackboard, using it as an electronic visual aid to the instructor's voice. Lecture and videotex illustrations are recorded on audio cassettes for student review.

The system has proven to be a cost-effective means for creating and distributing print and graphic courseware support material.

VIDEOTEX AND CAI

The rapid expansion of many different kinds of microcomputer hardware in schools and businesses is causing a dilemma for administrators and teachers.

- What content should be used?
- Should several copies of the software be made and can this be done without infringing on copyrights?
- How does one assess what the student has accomplished?



The use of a CAI system — that is, a time-shared computer system for some learning and training purposes — has advantages over the microcomputer. It is:

- less expensive
- more reliable
- fast
- ideal for electronic messaging
- lets the instructor check the work of the entire class on a terminal.

Add videotex to CAI and you receive these benefits:

- timesharing with a graphics capability
- use of real-time information in conjunction with courseware access to on-line reference systems
- a shared visual space for working together over a distance
- delivery of additional material via satellite, broadcast and cable becomes possible
- powerful graphics to overcome the boredom inherent in most drill and practice presentations.
- easier explanation and communication of concepts through graphics.
- the classroom may be extended to the home

THE CANADIAN EXPERIENCE

Canadian companies are developing integrated CAI/videotex systems and software. Softwords in Victoria, B.C., is implementing a Canadian CAI system, NATAL (with videotex) on the IBM PC in "C" language running under UNIX. Alphatel in Edmonton, Alberta, has created a CAI/videotex training package that can be tailored to suit many needs. It includes an Apple II or IIe, videodisc and videotex operating with CAI software.

In Quebec, the Télé-université has, with the co-operation of Control Data, produced an interface between PLATO (the Control Data CAI system) and NAPLPS. NAPLPS standard graphics may be inserted in PLATO courseware and PLATO compatible courseware may be transmitted via a satellite/videotex link.

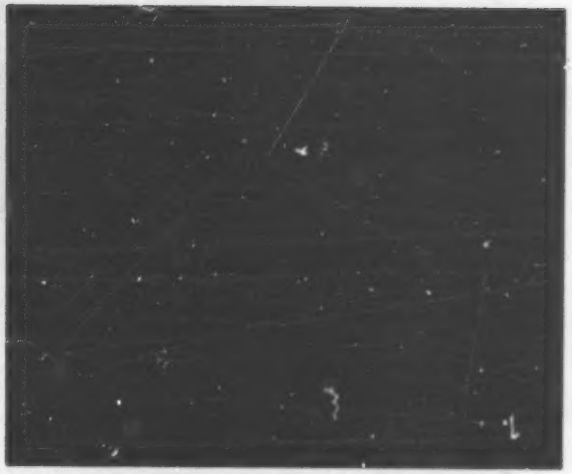
The University of Montreal Telematics Laboratory is building a database Agora, aimed at handicapped students and citizens. Agora will be available via the Télécâble Vidéotron cable distribution network.

In Canada, education is the concern of the provincial governments. Notwithstanding this, a national consortium has been formed to produce and distribute courseware across Canada. The Interprovincial Association for Telematics and Telidon (IPATT), under a $250,000 federal government loan, is establishing a co-operative network of universities (Télé-université Montreal, Athabasca, University of Victoria, University of Waterloo, Carleton University and the University of Saskatchewan). The network is intended to expand to a number of educational institutions which will produce and exchange courseware. All courseware is NAPLPS-compatible.

THE FUTURE IS HERE

Rest comfortably in the knowledge that today's videotex system is compatible with future enhancements. The NAPLPS videotex standard is accepted throughout North America.

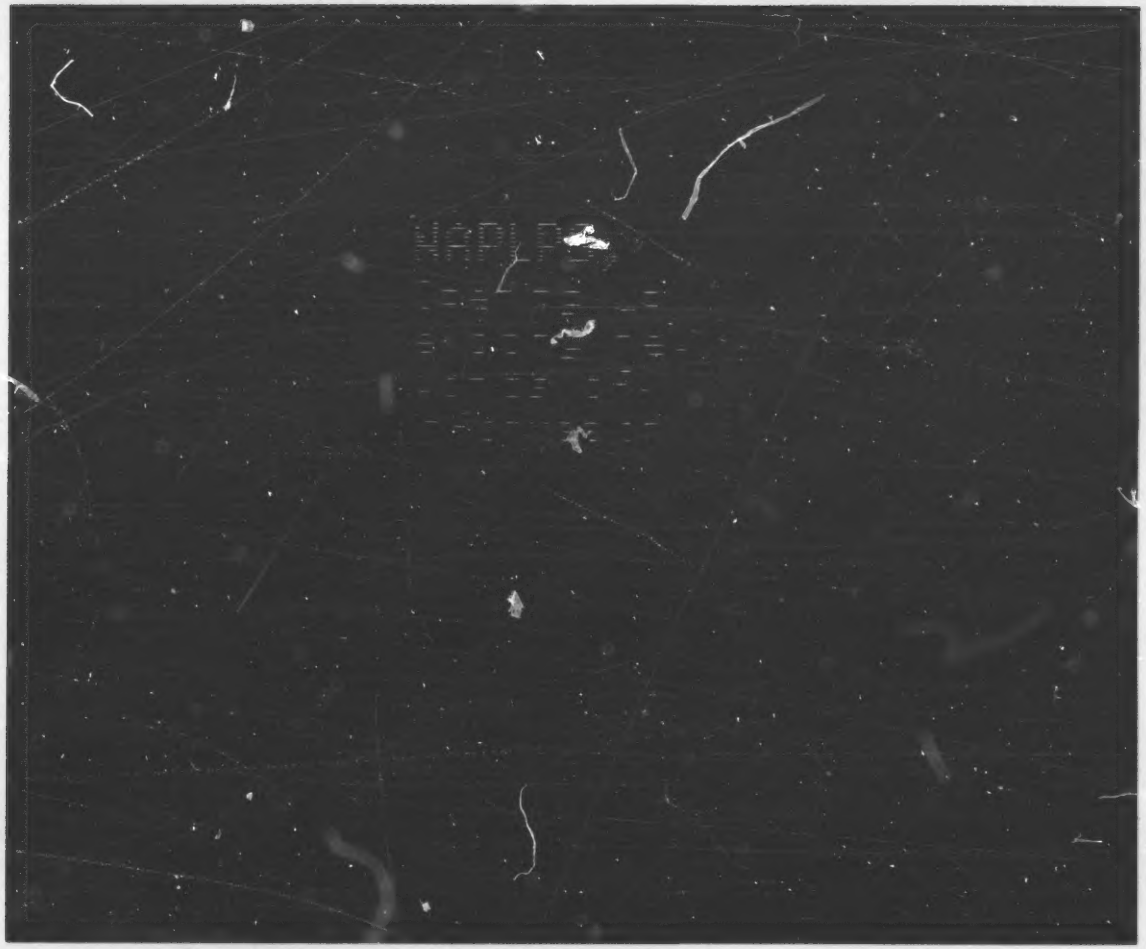
On the horizon are: picture videotex, an electronically reproduced picture; easy animation capability (graphics manipulation); sound; a system that responds to voice command; and two-way cable delivery. Gateway access to many databases will soon be here as will access to and from the home and between homes via local area networks. The home will become a vibrant part of the formalized educational system.



The distinction between videotex terminals and microcomputers will blur since microcomputers will contain videotex chips and videotex terminals will become adaptable to general computer applications. Computer programs can already be downloaded (telesoftware) to micro/videotex terminals. This will establish the home as a viable market place for education and training courseware. Educational institutions must extend services to the home to remain financially sound. Training and continuing education may be done on the student's own time.

TAKE ACTION

Begin today to look at your administrative, teaching and training needs and find out how videotex can help you enter the information age at affordable costs.



VIDEOTEX SOFTWARE FOR MICROS

If you have a microcomputer there is a wide range of software products that enable content creation and/or the decoding of videotex format material. Canadian companies such as Alphatel, Async, Ashdune, Avcor, Cableshare, Formic, Fulcrum Technologies, Limicon, Microstar, Microtaure, Softwords, Systemhouse, Tayson and TV Ontario have software packages that give your IBM PC, Apple II or IIe, Commodore 64 or other computer another dimension.

Benefits:

- low-cost graphic creation
- content transportability
- access to current, graphic content on the new public and private videotex databases.

AUDIO-VISUALS MADE EASY

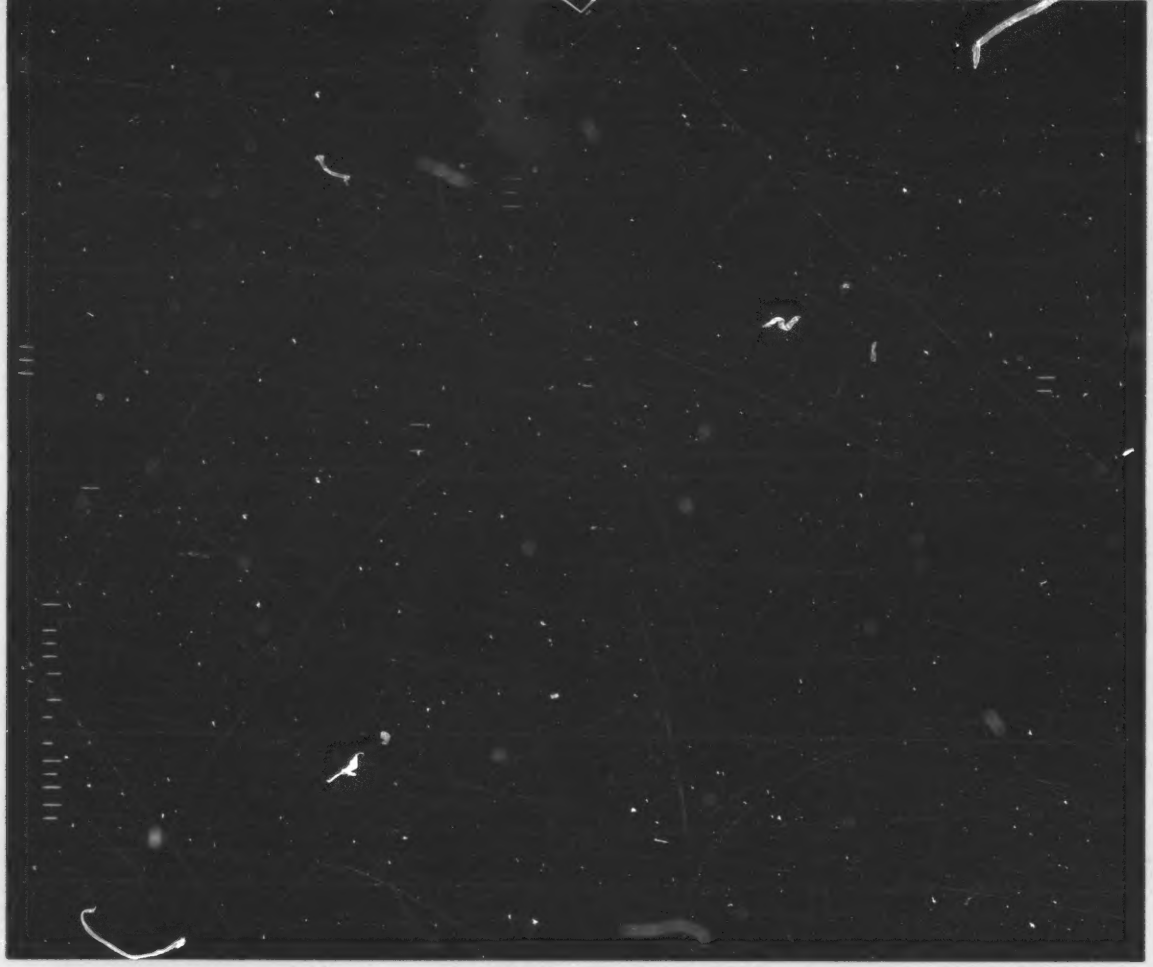
Several of the above videotex software packages enable micros to function as audio-visual displays, some in conjunction with videodisc.

The Norpak Electronic Projection System is a dedicated terminal with memory for storing videotex pages. The device allows the user to select content from an on-line database or from a pre-selected database stored in local memory. Music and a narrative may accompany the presentation. Television sets, touch-sensitive screens or large-screen displays may be used. This is an ideal method for seminar, training and classroom display. Changing the content is as simple as accessing the main database.

Viscount has created a system that integrates video, sound and videotex images. The television screen may be split to allow the presentation of video and videotex in different sectors of the screen. An ideal vehicle for training, it may be used in conjunction with videodisc.

Benefits:

- material may be displayed in a variety of ways depending on the need
- audio-visual stand-alone systems imply reduced staff
- it is quick and easy to update material
- material is available instantly, anywhere



A VERSATILE NETWORK

School boards with minicomputers may add a videotex content management software package and establish a phone, cable, or low-power broadcast network to dispense information to schools. Schools themselves may use videotex to store information particular to their local needs, while obtaining supplemental information from a central database.

For example, an index of all library materials housed in schools within a board could be in a central database to centralize the cataloguing function and facilitate more cost-efficient buying and sharing of books. Likewise, a central library of graphic information may be stored as a resource for teacher course preparation.

The Ontario and Québec Ministries of Education have established policies to implement the videotex option on all new microcomputers in their schools. This will permit schools access to information housed at the Ministry of Education, board and school levels.

Benefits:

- up-to-date administrative information available to administrators and teachers
- centralized resources for teachers
- cost-effective means of centralizing service and support to teachers, administrators and students
- effective way to manage current information and make it available to regional offices.

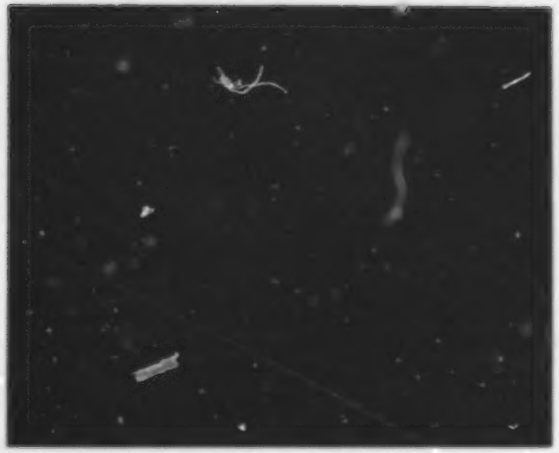
TELETEXT NETWORKS

Teletext may deliver training and educational information to the school and home. Combined with satellite transmission, teletext is a major link for distance education. TV Ontario, the Knowledge Network in British Columbia, Télé-université in Québec and Learn Alaska combine satellite transmission of video and teletext to extend their coverage, provide free delivery of content and create an electronic community of schools and homes. Teletext carried on closed-circuit television links classrooms and buildings on campus, reducing overall staff and information management costs.

Nabu Network Corporation has developed the Nabu Network for cable delivery of educational content, entertainment and information to microcomputers. Likewise Vidacom in Montreal has developed an intelligent cable network. Via the network, videotex software may be sent to a micro enabling it to receive teletext information or to access videotex databases via a phone auto-dialer. The Nabu and Vidacom networks exemplify the teledelivery of computer programs and videotex information.

Benefits:

- access to the home
- monthly rental of software
- preview of new content available
- delivery of the latest version of software



GATEWAY ACCESS

Videotex lets you connect to many databases. Publishers such as the Chicago Tribune Syndicate and Dow Jones have videotex databases; ideal reference tools for the information age.

Most Canadian and U.S. telephone companies provide gateway service to other databases in other locations for the cost of a call to the local gateway. For example, Bell iNet (Intelligent Network) lets you easily connect to numerous databases. It also tracks transactions for billing purposes.

Benefits:

- cost savings accrue from using a local phone call to reach databases in other locations.
- permits access to a variety of information from various sources and repackaging for educational and training needs.
- access to information that is current.
- access to bibliographic references without using a service bureau.

SUMMARY

Just look at what videotex can do and you will know that you cannot afford to wait any longer. Here is a quick review.

1. Videotex complements microcomputers.

- It is easy to use.
- It permits the creation and retrieval of high-quality colour graphic information.
- No computer programming skills are required.
- There is no extra hardware to handle.
- Content delivery is time and distance independent.
- Courseware may be dynamically generated based on the most current information.
- Access to on-line information teaches information age skills: finding, accessing, and assessing information; building one's own database; exchanging information, etc.

2. Education comes to the home.

- Families receive information on request.
- Student services (course registration, assignments, reviews, joint work projects) are delivered to the home.
- Videotex overcomes the restraints of class scheduling and travel for part-time students.
- Distance education permits the off-campus distribution and sale of products. This will help ease the financial strains on many educational institutions.
- Institutions will receive instant market feedback on the suitability of their products.
- Public services may be advertised and extended, including community library information, museum exhibits which "enter" the home, government information (health, economic, etc.)
- Training courses may be taken on the trainee's own time.

3. Videotex addresses social issues.

- Teletext delivers captioned video material for hard-of-hearing students. This includes colour graphics as well as text.
- Bliss symbolics may be used to communicate information to handicapped students and to allow them to communicate with instructors.
- The same graphic material may be used in several markets with the addition of multi-lingual text or subtitles.
- New information services are available for blind students via videotape/braille printer interfaces.
- Services for the handicapped are standardized and integrated. They are available via terminals that both able-bodied and handicapped persons can use.

4. The cost is right for action now.

- One version of courseware can serve the needs of an entire school board, thereby reducing software costs.
- The content is kept current automatically, thus reducing staff expenses.
- Your current investment base is secure since videotex uses available hardware (television, VCR, microcomputer, cable, phone) and requires no cycling of floppy disks to provide access to the information age.
- Videotex is an audio-visual aid and information management tool which can be administered by one person from a central area.
- Broadcast and cable distribution of courseware is free to the student, unless a pay-per-view approach is taken.
- The NABTS teletext system has been modified by an educational broadcaster to meet educational requirements including reduced costs. It costs less, creates superior graphics and delivers two to three times more content than competing systems.

5. Service and reliability are assured.

Canadian videotex systems have been developed and tested in many educational environments. We can customize hardware, software and content to meet specific needs and budgets. New developments from government and university research labs assure state-of-the-art technology.

6. Experience.

Canadian technology has been leading the industry since 1978. Our systems have been used by the Alternate Media Center, New York University. They are an integral part of the education system in Ontario and Québec and spreading quickly to the rest of Canada. Now in the University of Alaska, Canadian videotex systems are becoming established in the U.S., Europe and Asia.

Education is sharing information. Participate now in the information age with state of the art videotex backed by Canadian expertise.

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This is one of a series of 10 brochures covering various aspects of this exciting new technology. Titles in the series include:

Videotex and the World of Business
Videotex and Banking
Videotex: New Tool for the Retailer
Videotex and the Personal Computer
Videotex and Cable TV
Videotex and Education
Videotex: New Tool for the Travel Industry
Videotex and Government
Videotex and Electronic Publishing
Videotex: A Thousand and One applications

In addition, a Catalogue of Canadian Videotex Suppliers, is also available. These may be obtained through the contact above.

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